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## ORCHARD AND GARDEN NOTES.

May 15.

Evergreens make a good background for dahlias.

Set out mint and other herbs if alssum can be obtained.

Plant some Golden Bantam sweet corn, peas, and string beans.

Sweet alssum makes a good ground cover for a gladiolus bed.

Start the cultivator going in the garden. Now is the time to get ahead of the weeds.

Evergreens may be set out up to the time they begin to blossom. Never expose the roots to the sun and wind.

Sow California poppies, petunias, portulaca, Shirley poppies and sweet alssum where they are to flower.

Plant gladioli about four or six inches deep. For a succession of flowers set the bulbs every two weeks up to July.

Lily of the valley is one of the few plants that will grow in the shade. It blooms quite early.

Asparagus plants may still be set out. Set six inches deep. Do not cover more than two inches deep. Fill in the rest of the trench as the plants grow.

If garden land is not available, now is the time to think about making a window-box. Cannas, geraniums, coleus, and trailing vines are stock plants for this work.

Bulbs of hyacinths, daffodils, etc., that have flowered in the house may be planted in a sheltered part of the garden and will produce some flowers next year.

Harden off such plants as tomatoes and cabbage before setting them out. This is done by giving air to the plants and reducing the amount of water for several days before they are put in the field. Cabbage or tomatoes properly hardened off should be of a purplish color and the foliage will be hard and firm.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

## ORCHARD AND GARDEN NOTES.

May 22.

Make frequent sowings of your favorite vegetables all season.

Any vegetable or flower seed may go into the ground before June 1.

Prepare the land well for melons. They should have warm rich soil.

Early sown spinach, lettuce, and radishes should be ready for the table now.

Grapes should be tied to the trellis and new shoots which crowd may be removed.

Cucumbers, melons, and other vine crops may go into the ground during May.

Mulch large trees or shrubbery which has been set this spring. It will help to prevent drying out.

Chicken wire makes a neat support for peas and pole beans and does not cost much more than brush.

Was a good bed of strawberries set out this spring? It may still be done, although rather late.

Lima beans may be planted late in May. The dwarf varieties are easier to grow and just as good as the pole sorts.

Tomatoes may be staked or grown on a wire fence. Trim to one or two branches. It is more work but larger and better colored fruit results.

Late this month all plants such as tomatoes, egg plant, and peppers may be set out. There is always danger of frost up to the last week of May.

Early Iris should be in bloom by June 1. By a proper choice of varieties several weeks' bloom of these plants may be enjoyed.

Become acquainted with the many flowering shrubs and plants in bloom at this season of the year. There are many native sorts that could easily be moved to the home yard.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

## "BLIND" CULTIVATION OF CORN.

If the corn is slow in coming up and the weeds are getting a start, cultivate the rows just as though the corn was up. In a weedy field this is an important item, for it holds the weeds in check and loosens the soil, thus allowing the sun's rays to penetrate deeper and warm it more quickly.—C. P. Bull, Associate in Farm Crops, University Farm, St. Paul.

## NEW FRUIT VARIETIES.

Report All Promising Seedlings to the Section of Fruit-Breeding, University Farm.

The University of Minnesota, through the Fruit-Breeding Farm at Zumbro Heights and the Section of Fruit-Breeding in the Division of Horticulture, is attempting to originate new fruits on an extensive scale. The peculiar conditions of climate in the Northwest make it almost imperative that we build up a horticulture of our own. Some of the pioneers of this section have been at this for fifty years. We propose in the fruit-breeding work to round out a suitable list of varieties for this section. Besides this attempt at originating new fruits, we hope to make University Farm a clearing house for all new seedlings which arise in various sections of the State. We shall have to depend upon the field men to let us know of these seedlings. Anyone who observes a promising seedling is urged to report it to the Section of Fruit-Breeding.—M. J. Dorsey, Research Technologist in Fruit-Breeding, University Farm, St. Paul.

## PRESERVING FOODS FOR HOME USE

Juicy foods, such as vegetables, fruits, and meats, spoil very quickly when left in the open air, especially in summertime. The decay of such foods is the result of the action of microorganisms which are always present in the air and hence infect any food material which is open to it.

These microorganisms, commonly known as "bacteria," "germs," or "microbes," are all alike in that in order to grow, and so produce the decay of the food with which they may be in contact, they must have moisture, the proper temperature, and plenty of air, and must not be in contact with certain chemicals which hinder their growth and are known as "antiseptics" or preservatives.

Drying is the easiest and most efficient method of preserving food from decay; but the necessary heat to dry the material rapidly usually partially cooks the food and so changes its flavor. But thoroughly dried foods will keep indefinitely, if kept from getting damp.

The next most efficient means of preservation is to exclude the air, as canning fruits and vegetables. Heating the material before it is sealed up does two things, (1) kills most of the bacteria which are in the food, and (2) drives out the air from it, so that when the can is sealed up air-tight any bacteria which may not be killed by the heat cannot grow because they have no air.

The use of chemical preservatives, except such harmless ones as salt, sugar, or the products in wood smoke, is objectionable because any chemical which will prevent fermentation will almost certainly hinder digestion. Moreover, foods which have been properly heated and then carefully sealed do not need added preservatives to keep them from spoiling.—R. W. Thatcher, Agricultural Chemist, University Farm, St. Paul.

## FARMERS' ELEVATORS IN MINNESOTA.

In accordance with a law passed by the last Minnesota Legislature, the Division of Agricultural Economics of the College of Agriculture is collecting reports from cooperative organizations in Minnesota. The following preliminary figures with regard to farmers' elevators have been issued. There are 270 farmers' elevators in Minnesota, the aggregate membership of which is about 34,500, averaging 128 to a company. One farmer out of every five in the State belongs to a farmers' elevator company. Farmers own at least 50 per cent of the stock in all these companies, and own practically all of the stock in most of them. The aggregate volume of business was about \$24,000,000 for the 1912 crop, of which \$22,000,000 represents value of grain sold, and \$2,000,000 value of supplies purchased. These elevators marketed about 30 per cent of all grain marketed in Minnesota.

Ninety-four and one-half per cent have the one-man-one-vote principle, five-sixths of them limit the number of shares that one person may own, and 26 per cent have the patronage dividend. Nearly 50 per cent paid no dividend at all. At least 20 per cent lost money during the year 1913. Sixty-three per cent buy coal, 41 per cent, feed; 40 per cent, flour; 35 per cent, binding twine; 18 per cent, seeds; and 16 per cent, salt. Among other commodities handled are cement, tile, farm machinery, lumber, fence posts, oil, and wire fencing. All but 41 companies out of 239 reported the handling of some other commodity than grain.—L. D. H. Weld, Agricultural Economist, University Farm, St. Paul.

## FIRE BLIGHT OF APPLE TREES.

During the past summer there was more fire blight on apple trees in some localities than for a number of years past. It was especially destructive to young orchards and therefore deserves serious consideration on the part of every fruit-grower. The cause of the disease is a bacterium which is spread from tree to tree by means of insects or pruning tools. It is, therefore, very contagious and this should always be taken into consideration.

The fact that there was a great deal of the blight last year does not necessarily mean that there will be a great deal of it again this season. The germ lives over during the winter in the so-called "hold-over cankers," although only a small percentage of the cankers can be considered "hold-over cankers." If the weather conditions this year are not favorable to its spread, it is possible that there may not be a great deal of blight. If, however, the weather conditions are favorable, it is probable that it will again cause a considerable amount of damage.

Control measures are relatively simple, although a great deal of care is required in carrying them out. Within a short time the hold-over cankers in which the germs have lived during the winter may become active if the weather is warm and moist. They can very frequently be recognized by means of drops of a milky juice which may appear in the cankered area. Sometimes so much of the juice is exuded that it runs down the side of the limb. It contains countless numbers of the bacteria. Insects are attracted to it and in visiting other trees they may spread the disease very rapidly, especially at flowering-time. The safest method of procedure is to cut out all of the dead areas. All limbs which are affected should be cut off at least six inches back from the point at which disease shows. The pruning tools used should be disinfected with corrosive sublimate dissolved in water at the rate of one part of the poison to one thousand parts of water. This solution is very poisonous if taken internally. A cloth wet with the solution may be used to swab off the pruning instruments. This is necessary because unless it is done the pruning instrument may come in contact with diseased wood and then spread the disease to other trees on which it is used.

After the orchard is very carefully pruned, there should be very little fire blight, if neighbors cooperate. However, a few cankers may be missed and a certain amount of the blight may appear at various times during the spring and summer. In case the trees are kept in proper condition, these attacks should be confined almost entirely to the younger twigs. These should then be systematically removed whenever they appear, the same precautions being taken as were indicated for the spring pruning. All diseased parts should be burned in order that they may not serve as sources of infection.—E. C. Stakman, Assistant Plant Pathologist, University Farm, St. Paul.

## ANALYSES AT COST.

Agricultural Chemists At University Farm Analyze Many Substances At Cost.

The Division of Agricultural Chemistry receives frequent requests for analyses of water, feeding stuffs, human foods, insecticides, etc., etc. In the past, when such analyses could be made without seriously interfering with the regular teaching and research work of the Division, they were made free of charge. The number of such requests has now become so great that it is impossible to make the analyses without employing additional assistance in the laboratory. The University is unable to provide the additional assistance out of its funds, which are appropriated for other purposes.

Since the Agricultural College desires to serve the farmers of the State in every possible way, it has been determined that we may give this analytical service to any one who is willing to pay the bare cost of doing the work. This is in no sense a fee, but simply a means of providing the service at cost. Such analyses will be made only with the understanding that the results are not to be used in any way for advertising purposes.

Since it is necessary to arrange for special assistance for work of this kind, remittance must be received before the work can be undertaken. All persons desiring analyses of this kind should, therefore, write to the Agricultural chemist to arrange for the work before sending in samples.—R. W. Thatcher, Agricultural Chemist, University Farm, St. Paul.

## HOG CHOLERA NOTES.

Any one can buy or administer commercial serum for serum-only treatment. State serum may be used only by those holding permits from the Live Stock Sanitary Board.

The serum-virus treatment may be administered only by those holding serum-virus permits from the Live Stock Sanitary Board. When working temporarily as state representatives, virus permit-holders may use only serum and virus obtained from the state plant. Serum will be sent C. O. D., preferably to owner. Virus will be sent to virus permit-holders only. Those holding serum-virus permits may use, in private practice, serum and virus from any government-approved plant.

Use serum-only treatment only in infected herds, and provide as much immediate exposure as possible; where pen exposure is questionable, serum-virus treatment is preferred.

The cost will likely be about half a cent per cubic centimeter for veterinary service when special field veterinarians are used. State serum will sell at one-third of a cent per cubic centimeter; commercial serum, through the state serum plant, at one and one-half or two cents per cubic centimeter.

A list of those persons authorized to use serum-virus can be secured by anyone from the Live Stock Sanitary Board, Old Capitol, St. Paul, or the Veterinary Division, University Farm, St. Paul.

The Live Stock Sanitary Board proposes to appoint four additional field veterinarians on full time, to be located in the worst infected portions of the state, where regular veterinary service is scarce. The Board further proposes to appoint 150 more special field veterinarians who will be authorized to administer serum-virus treatment as state representatives. A charge of from half to two-thirds of a cent per cubic centimeter will be made by the State for veterinary service for work done by the special field veterinarian.—M. H. Reynolds, Veterinarian, University Farm, St. Paul.

## TEACHERS' CONFERENCE.

University Farm Summer Session Wants All Teachers to Meet July 20-25.

A one week's conference of teachers of agriculture and of home economics will be held at University Farm July 20-25, which will be during the summer session of the College of Agriculture. The forenoons will be devoted to special instruction given by the college faculty and the afternoons to conferences regarding the work in Minnesota high schools. These conferences are especially helpful to men who are new to the State and Superintendent C. G. Schulz is very desirous that all new men attend during the entire week in order to become familiar with the problems here and thus do better work from the start.—A. V. Storm, Professor of Agricultural Education, University Farm, St. Paul.

## ALFALFA PASTURE FOR HOGS.

Alfalfa makes an excellent pasture crop for hogs. When it is used for this purpose, a sufficient large field should be sown, so that the hogs may have access to it and the regular hay crops be removed just as if no hogs were on the field. With so large a pasture, the hogs root up very little except near the feeding and watering places, and mowing at the proper times keeps the plants growing and allows them to produce vigorous young stems, which are relished by the hogs.

Agricultural Extension Bulletin 49 on Alfalfa-Growing in Minnesota contains full information on this subject. Sixty thousand copies have just been printed for free distribution.—A. C. Arny, Assistant Agriculturist, University Farm, St. Paul.

## BETTER POULTRY HOUSES.

The University Farm poultry section is issuing plans for use in building a model poultry house for 100 hens. The house is adapted to Minnesota conditions and is progressive in construction and cost. A comfortable and durable house may be built for a minimum figure, or a more expensive house may be constructed which will ornament any grounds and look well enough to be the companion of the best model farm buildings. It may be increased in size gradually without wasting nails, shingles, or building paper, and is very easy to construct. It provides accommodations for both the breeding and laying flocks. The plans are mailed at cost—ten cents—or with full specifications the price is twenty-five cents.—A. C. Smith, Poultryman, University Farm, St. Paul.

## FIGHT THE FLIES.

Now is the time to begin our fight against the house-fly. From 95 to 99 per cent of our flies breed in horse manure, so the obvious remedy is to prevent the collection of quantities of stable litter which might act as fly nurseries. Their next favorite breeding place is the kitchen garbage and privies. These latter can be more easily eliminated than the former.

Begin early by removing all stable litter to the field. See that no small pockets of manure are left around the stable yard after the removal of the pile. Then follow this cleaning up by hauling the manure onto the field each day during the summer. This may seem like a burden to the farmer, but with a little forethought, it need not be so. Arrangements can be made for the use of a field for this purpose and it is a well-known principle that manure placed at once upon the field is of more value as plant food. Remember that during summer weather a period of five days may be sufficient to produce a brood of flies from the egg to the adult so that manure left in a pile for this length of time will serve as a breeding place.

In villages and small towns, where it is not possible to remove the stable litter every day, a lean-to or a room in the stable may be constructed which is dark and has ventilators covered with fine wire screening. This can be used to receive the manure until it is convenient to remove it. Flies will not enter a dark room to place their eggs and cannot enter a fly-proof room, so the manure is safe from infection in such places.

Flies feed upon filth, such as sputum and that found in privies, but they are also very strongly attracted by the odors of cooking and food in the house. To prevent infection from being carried to our food, every precaution should be used to make the outbuildings perfectly sanitary so that flies cannot enter, and the houses should also have windows and doors fitted with screens.

The motto in fly control should be, "Better sanitation" both in the barnyard and about the house.—C. W. Howard, Assistant Entomologist, University Farm, St. Paul.

## STOMACH WORMS IN SHEEP.

Sheep suffer little from tuberculosis and other infective diseases, but they often become infested with certain blood-sucking parasites or worms which have become rather a serious obstacle to those who are interested in raising sheep. The most dreaded of these is the stomach worm. This worm is widely distributed and in certain stages of its life it is very resistant to cold or dry weather. The stomach worm reaches maturity and lays eggs only in the stomach. The eggs pass out with the intestinal contents and begin hatching within a few days after they are dropped, if climatic conditions are favorable. Dry weather or severe cold will destroy the eggs and prevent them from hatching.

After hatching, the young worm crawls upon a blade of grass while it is wet with dew or rain. The worm then encloses itself in a membranous sac, and remains attached to the grass. In this condition it can remain uninjured by cold or drought much longer. If the grass is eaten the encysted worm reaches the stomach of the browsing sheep, where it soon matures. It injures the sheep by robbing it of certain foodstuffs, by sucking blood, by giving off certain poisons that injure the red blood cells, and by the irritation caused as it clings to the stomach wall by the aid of sharp teeth. Lambs are more susceptible than older sheep probably because of the fact that the older sheep have become accustomed to the presence of the worms.

## Prevention.

In the spring soon after the lambing period the old sheep should all receive a one- or two-ounce dose of gasoline, followed by a small dose of epsom salts. They should then be turned on a worm-free pasture, if possible. In July the entire herd, including the lambs, should be treated with gasoline and turned into a new pasture. This treatment should be repeated in November, when the flock should again be removed to new pastures. Pasture rotation combined with drugs that are injurious to the worms is the most practical method of successfully combating this worm. At University Farm pasture rotation has been practiced so successfully that few losses have occurred from the effects of this worm.—W. L. Boyd, Assistant Veterinarian, University Farm, St. Paul.